〔Biochem. Int., **26**, 1073-1078 (1992)〕 [Lab. of Molecular Biology]

Expression of pS2 Gene in Human Breast Cancer Cell Line MCF-7 is Controlled by Retinoic Acid.

MASAO HIROTA, YOSHIKO FURUKAWA, KYOZO HAYASHI*

The pS2 gene is one whose expression is rapidly and makedly increased by the administration of estradiol in MCF-7 cells, an established human breast cancer cell line derived from a pleural effusion from breast cancer patients. MCF-7 cells have been demonstrated to contain significant amounts of estrogen receptors, and pS2 gene codes for a protein of 84 amino acids, but its physiological function is yet unknown. We established a simplified method for the quantitative measurement of pS2 mRNA using the reverse transcriptase-polymerase chain reaction method. Expression of the pS2 gene, which is transcriptionally induced by estrogen in breast cancer cell line MCF-7 cells, can be repressed by retinoic acid in unstimulated cells.

〔Biochem. Int., **27**, 709-715 (1992)〕 [Lab. of Molecular Biology]

Neurotoxin-Binding Activity in the Supernatant Fraction of the Electric Organ from *Torpedo Californica*.

HIROSHI NOMOTO, YASUHIRO NAGAKI, HIROKI SHOJI, MITSUHIRO OHTA, KYOZO HAYASHI*

We found that neurotoxin-binding activities in the supernatant fraction obtained by ultracentrifugation of a homogenate of the electric organ dissected from the electric ray, *Torpedo californica*. While about half of the electric organ dissected from the electric ray, *Torpedo californica*. While about half of the activity was estimated as due to acetylcholine receptors in dispersed microparticles, the remainder was unassigned. A part of the latter, detected with α-bungarotoxin, eluted ahead of α-bungarotoxin-acetylcholine receptor complex on a Sepharose CL-6B column in the presence of 1% Triton X-100. Another component eluted after this complex. Although these activities were immunologically related to AChR, they were different from AChR in their size and reactivity with concanavalin A.

〔Biochem. Int., **28**, 1071-1077 (1992)〕 [Lab. of Molecular Biology]

Crosslinking of Protein in Acetylcholine Receoptor-Rich Membranes from *Torpedo Californica* : Relation of 43-kD Protein and *Torpedo* dystrophin to Acetylcholine Receptor.

HIROKI SHOJI, HIROSHI NOMOTO, MITSUHIRO OHTA, KYOZO HAYASHI*

We examined the spatial relation of 43-kD protein and *Torpedo* dystrophin, which are cytoplasmic peripheral membrane proteins in the nicotinic acetylcholine receptor (AChR)-rich membranes, to AChR. We used three kinds of the heterobifunctional crosslinking reagents to crosslink proteins in the AChR-rich membranes. As a results, *Torpedo* dystrophin was crosslinked at the same concentrations as were effective for the 43-kD protein and γ subunit. On the basis of these results, we concluded that the 43-kD protein is intimately assosiated with the γ subunit of AChR and *Torpedo* dystrophin.